

Work Order ID 150624

Monday, August 29, 2016 2:49:39 PM

646.3311

B 150624

150624

Page 1

Item ID: 646.3311

REV. N/C3

Accept

N900040100

Setup Start *NS1*

Revision ID:

Item Name: RH Half - Upper Cutter Assembly

Stop *NS2*

Start Date: 8/8/2016 Start Qty: 10.00

10

Cust Item ID:

Required Date: 8/29/2016 Req'd Qty: 10.00

10

Customer:

Reference:

Approvals: Process Plan: DAS 21 Date: AUG 30 2016

Tooling:

Date:

Run Start *NR1*

QC: 9-89

Date:

SPC (Y/N):

Date:

Stop *NR2*

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
--------------------------------	--------------------------	----------------------	---------	--------	--------------	---------------	---------------	------------------	----------------

Draw Nbr	Revision Nbr
----------	--------------

646.3300	N/C3
----------	------

110

0.89

110

HAAS CNC VERTICAL MACHINING #1

6.17

HAAS 1

Memo

HAAS CNC vertical machine #1

1-Machine per folio FB154

DWG REV: N/C3

FOLIO REV: AA

Blank 13.375

2- deburr and break all sharp edges

120

QC2- Inspect parts off machine FAI/FAIB

0.00

120

QC

Memo

Quality Control

0.00

10

DAS 14 9-39 SK 16-10-4 16/10/03

10

DAS 14 9-39 SK 16-10-4 16/10/03

DQA: _____ Date: _____



WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____	DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐	AGAINST DEPARTMENT/PROCESS <table style="width:100%; border: none;"> <tr> <td style="border: none;">Skid-tube ☐</td> <td style="border: none;">Cross tube ☐</td> <td style="border: none;">Water Jet ☐</td> <td style="border: none;">Engineering ☐</td> </tr> <tr> <td style="border: none;">Machining ☐</td> <td style="border: none;">Small Fab ☐</td> <td style="border: none;">Prod. Eng. Coord. ☐</td> <td style="border: none;">Quality ☐</td> </tr> <tr> <td style="border: none;">Thermoforming ☐</td> <td style="border: none;">Finishing ☐</td> <td style="border: none;">Rec/Store/Packaging ☐</td> <td style="border: none;">Other ☐</td> </tr> <tr> <td style="border: none;">Large Fab ☐</td> <td style="border: none;">Composite ☐</td> <td style="border: none;">Supplier ☐</td> <td></td> </tr> </table>				Skid-tube ☐	Cross tube ☐	Water Jet ☐	Engineering ☐	Machining ☐	Small Fab ☐	Prod. Eng. Coord. ☐	Quality ☐	Thermoforming ☐	Finishing ☐	Rec/Store/Packaging ☐	Other ☐	Large Fab ☐	Composite ☐	Supplier ☐	
Skid-tube ☐	Cross tube ☐	Water Jet ☐	Engineering ☐																		
Machining ☐	Small Fab ☐	Prod. Eng. Coord. ☐	Quality ☐																		
Thermoforming ☐	Finishing ☐	Rec/Store/Packaging ☐	Other ☐																		
Large Fab ☐	Composite ☐	Supplier ☐																			
Date :	Step #:	QTY Effective :		MRB (QSI042) Approval																	
Description Work Order Deviation		Disposition		Completed By																	
				Lead hand / Supervisor Approval Verification																	
				QC / QA Coordinator Approval																	
Root Cause		FAULT CATEGORY																			
Environment ☐ Design ☐ Doc/Data ☐ Equip/Tooling ☐ Handling/Pre ☐ Material ☐ Internal Transport ☐ Tribal Knowledge ☐ LOA ☐ Substation ☐ Past Expiry Date ☐ Misidentified ☐	No Re-verification ☐ Operator ☐ Offset/Setup ☐ Supplier ☐ Training ☐ Use for Testing ☐ Poor Information ☐ Rushing ☐ Product Improvement ☐ Process Improvement ☐ Manufacturing Process ☐ Past Due ☐	Pressure/Forced ☐ Bending ☐ Centre Not Concentric ☐ Cracks ☐ Crimp/Kink/Ripple/Wave ☐ Cuffs ☐ Crushing ☐ Heat Treat ☐ Wave/Twist in Tube ☐ Marks/Chatter ☐	Temperature/Cure ☐ Set-up ☐ BOM/Route ☐ Broken/Damage/Defect ☐ Inspection Incomplete/Unqualified ☐ Contamination ☐ Countersink ☐ Cut Too Short ☐ Instructions Incomplete/Unclear ☐ Drill Holes ☐	Power Loss/Surge ☐ Folio/Program ☐ Grain ☐ Weld ☐ Wrong Stock Pulled ☐ Out of Sequence ☐ Off-set ☐ Mislabeled ☐ Fit/Function ☐ Misaligned/off center ☐	Positioned Wrong ☐ Outside Dimensions ☐ Over/Under tolerance ☐ Part Incorrect ☐ Part Lost/Missing ☐ Part Moved ☐ Drawing ☐ Finish ☐ Misread ☐ Turning Sequence ☐																
OTHER :																					

Work Order ID 150624

Monday, August 29, 2016 2:49:39 PM

150624

Page 2

Item ID: 646.3311

Accept

N900040100

Setup Start

NS1

Revision ID:

Stop

NS2

Item Name: RH Half - Upper Cutter Assembly

Start Date: 8/8/2016

Start Qty: 10.00

10

Cust Item ID:

Required Date: 8/29/2016

Req'd Qty: 10.00

10

Customer:

Reference:

Approvals:

Process Plan: _____

Date: _____

Tooling: _____

Date: _____

Run Start

NR1

QC: _____

Date: _____

SPC (Y/N): _____

Date: _____

Stop

NR2Sequence ID/
Work Center IDOperation
DescriptionSet Up/
Run Hours

Tool ID

Tool #

Plan
CodeAccept
QtyReject
QtyReject
NumberInsp.
Stamp

130

QC8- Inspect parts - second check

0.00

130

QC

Memo

0.00

Quality Control

10

0

DAS

20

9-89

16-10-04

140

Outsource process-Anodize per QSI017 4.1.10.1

0.00

140

Outsource4

Memo

0.00

Outsource process - Anodize

Issue P/O to ATG :

33916

1- Black Anodize as per Dwg 646.3300

2- PRIME AS PER DWG, SEE NOTE #2

Certification of Comformity is required

10

OCT 1 2 2016

DAS

13

9-89

150

Receive & Inspect for Damage & Mat'l Certs

0.00

150

Packaging

Memo

0.00

Packaging

10X Sp/6-10-31

DQA: _____ Date: _____



WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____	DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐	AGAINST DEPARTMENT/PROCESS <table style="width:100%; border: none;"> <tr> <td style="border: none;">Skid-tube ☐</td> <td style="border: none;">Cross tube ☐</td> <td style="border: none;">Water Jet ☐</td> <td style="border: none;">Engineering ☐</td> </tr> <tr> <td style="border: none;">Machining ☐</td> <td style="border: none;">Small Fab ☐</td> <td style="border: none;">Prod. Eng. Coord. ☐</td> <td style="border: none;">Quality ☐</td> </tr> <tr> <td style="border: none;">Thermoforming ☐</td> <td style="border: none;">Finishing ☐</td> <td style="border: none;">Rec/Store/Packaging ☐</td> <td style="border: none;">Other ☐</td> </tr> <tr> <td style="border: none;">Large Fab ☐</td> <td style="border: none;">Composite ☐</td> <td style="border: none;">Supplier ☐</td> <td></td> </tr> </table>				Skid-tube ☐	Cross tube ☐	Water Jet ☐	Engineering ☐	Machining ☐	Small Fab ☐	Prod. Eng. Coord. ☐	Quality ☐	Thermoforming ☐	Finishing ☐	Rec/Store/Packaging ☐	Other ☐	Large Fab ☐	Composite ☐	Supplier ☐	
Skid-tube ☐	Cross tube ☐	Water Jet ☐	Engineering ☐																		
Machining ☐	Small Fab ☐	Prod. Eng. Coord. ☐	Quality ☐																		
Thermoforming ☐	Finishing ☐	Rec/Store/Packaging ☐	Other ☐																		
Large Fab ☐	Composite ☐	Supplier ☐																			
Date :	Step #:	QTY Effective :		MRB (QSI042) Approval																	
Description Work Order Deviation		Disposition																			
				Completed By																	
				Lead hand / Supervisor Approval Verification																	
				QC / QA Coordinator Approval																	
<table style="width:100%; border: none;"> <tr> <td style="width:25%; vertical-align: top;"> Root Cause Environment ☐ Design ☐ Doc/Data ☐ Equip/Tooling ☐ Handling/Pre ☐ Material ☐ Internal Transport ☐ Tribal Knowledge ☐ LOA ☐ Substation ☐ Past Expiry Date ☐ Misidentified ☐ </td> <td style="width:25%; vertical-align: top;"> ☐ No Re-verification ☐ Operator ☐ Offset/Setup ☐ Supplier ☐ Training ☐ Use for Testing ☐ Poor Information ☐ Rushing ☐ Product Improvement ☐ Process Improvement ☐ Manufacturing Process ☐ Past Due </td> <td style="width:25%; vertical-align: top;"> ☐ Pressure/Forced ☐ Bending ☐ Centre Not Concentric ☐ Cracks ☐ Crimp/Kink/Ripple/Wave ☐ Cuffs ☐ Crushing ☐ Heat Treat ☐ Wave/Twist in Tube ☐ Marks/Chatter </td> <td style="width:25%; vertical-align: top;"> FAULT CATEGORY ☐ Temperature/Cure ☐ Set-up ☐ BOM/Route ☐ Broken/Damage/Defect ☐ Inspection Incomplete/Unqualified ☐ Contamination ☐ Countersink ☐ Cut Too Short ☐ Instructions Incomplete/Unclear ☐ Drill Holes </td> <td style="width:25%; vertical-align: top;"> ☐ Power Loss/Surge ☐ Folio/Program ☐ Grain ☐ Weld ☐ Wrong Stock Pulled ☐ Out of Sequence ☐ Off-set ☐ Mislabeled ☐ Fit/Function ☐ Misaligned/off center </td> <td style="width:25%; vertical-align: top;"> ☐ Positioned Wrong ☐ Outside Dimensions ☐ Over/Under tolerance ☐ Part Incorrect ☐ Part Lost/Missing ☐ Part Moved ☐ Drawing ☐ Finish ☐ Misread ☐ Turning Sequence </td> </tr> <tr> <td colspan="4" style="vertical-align: top;"> OTHER : _____ </td> </tr> </table>					Root Cause Environment ☐ Design ☐ Doc/Data ☐ Equip/Tooling ☐ Handling/Pre ☐ Material ☐ Internal Transport ☐ Tribal Knowledge ☐ LOA ☐ Substation ☐ Past Expiry Date ☐ Misidentified ☐	☐ No Re-verification ☐ Operator ☐ Offset/Setup ☐ Supplier ☐ Training ☐ Use for Testing ☐ Poor Information ☐ Rushing ☐ Product Improvement ☐ Process Improvement ☐ Manufacturing Process ☐ Past Due	☐ Pressure/Forced ☐ Bending ☐ Centre Not Concentric ☐ Cracks ☐ Crimp/Kink/Ripple/Wave ☐ Cuffs ☐ Crushing ☐ Heat Treat ☐ Wave/Twist in Tube ☐ Marks/Chatter	FAULT CATEGORY ☐ Temperature/Cure ☐ Set-up ☐ BOM/Route ☐ Broken/Damage/Defect ☐ Inspection Incomplete/Unqualified ☐ Contamination ☐ Countersink ☐ Cut Too Short ☐ Instructions Incomplete/Unclear ☐ Drill Holes	☐ Power Loss/Surge ☐ Folio/Program ☐ Grain ☐ Weld ☐ Wrong Stock Pulled ☐ Out of Sequence ☐ Off-set ☐ Mislabeled ☐ Fit/Function ☐ Misaligned/off center	☐ Positioned Wrong ☐ Outside Dimensions ☐ Over/Under tolerance ☐ Part Incorrect ☐ Part Lost/Missing ☐ Part Moved ☐ Drawing ☐ Finish ☐ Misread ☐ Turning Sequence	OTHER : _____										
Root Cause Environment ☐ Design ☐ Doc/Data ☐ Equip/Tooling ☐ Handling/Pre ☐ Material ☐ Internal Transport ☐ Tribal Knowledge ☐ LOA ☐ Substation ☐ Past Expiry Date ☐ Misidentified ☐	☐ No Re-verification ☐ Operator ☐ Offset/Setup ☐ Supplier ☐ Training ☐ Use for Testing ☐ Poor Information ☐ Rushing ☐ Product Improvement ☐ Process Improvement ☐ Manufacturing Process ☐ Past Due	☐ Pressure/Forced ☐ Bending ☐ Centre Not Concentric ☐ Cracks ☐ Crimp/Kink/Ripple/Wave ☐ Cuffs ☐ Crushing ☐ Heat Treat ☐ Wave/Twist in Tube ☐ Marks/Chatter	FAULT CATEGORY ☐ Temperature/Cure ☐ Set-up ☐ BOM/Route ☐ Broken/Damage/Defect ☐ Inspection Incomplete/Unqualified ☐ Contamination ☐ Countersink ☐ Cut Too Short ☐ Instructions Incomplete/Unclear ☐ Drill Holes	☐ Power Loss/Surge ☐ Folio/Program ☐ Grain ☐ Weld ☐ Wrong Stock Pulled ☐ Out of Sequence ☐ Off-set ☐ Mislabeled ☐ Fit/Function ☐ Misaligned/off center	☐ Positioned Wrong ☐ Outside Dimensions ☐ Over/Under tolerance ☐ Part Incorrect ☐ Part Lost/Missing ☐ Part Moved ☐ Drawing ☐ Finish ☐ Misread ☐ Turning Sequence																
OTHER : _____																					

Work Order ID 150624

Monday, August 29, 2016 2:49:39 PM

150624

Page 3

Item ID: 646.3311

Accept

N900040100

Setup Start

NS1

Revision ID:

Stop

NS2

Item Name: RH Half - Upper Cutter Assembly

Start Date: 8/8/2016

Start Qty: 10.00

10

Cust Item ID:

Required Date: 8/29/2016

Req'd Qty: 10.00

10

Customer:

Reference:

Approvals:

Process Plan: _____

Date: _____

Tooling: _____

Date: _____

Run Start

NR1

QC: _____

Date: _____

SPC (Y/N): _____

Date: _____

Stop

NR2Sequence ID/
Work Center IDOperation
DescriptionSet Up/
Run Hours

Tool ID

Tool #

Plan
CodeAccept
QtyReject
QtyReject
NumberInsp.
Stamp

155

QC5- Inspect part completeness to step on W/O

0.00

155

QC

Memo

0.00

Quality Control

DAS
38
9-89

NOV 02 2016

180

Identify as per dwg & Stock Location: CC1022 0.00***180***

Packaging

Memo

0.00

Packaging

IDENTIFY AS PER APICAL MPP-120 BY STAMPING P# AND REV

DAS
6
9-89

NOV 03 2016

190

QC21- Final Inspection - Work Order Release 0.00

190

QC

Memo

0.00

Quality Control

DAS
21
9-89

NOV 07 2016

DAS
21
9-89

NOV 03 2016

DQA: _____ Date: _____



WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____		DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐		AGAINST DEPARTMENT/PROCESS <table style="width:100%; border: none;"> <tr> <td style="border: none;">Skid-tube ☐</td> <td style="border: none;">Cross tube ☐</td> <td style="border: none;">Water Jet ☐</td> <td style="border: none;">Engineering ☐</td> </tr> <tr> <td style="border: none;">Machining ☐</td> <td style="border: none;">Small Fab ☐</td> <td style="border: none;">Prod. Eng. Coord. ☐</td> <td style="border: none;">Quality ☐</td> </tr> <tr> <td style="border: none;">Thermoforming ☐</td> <td style="border: none;">Finishing ☐</td> <td style="border: none;">Rec/Store/Packaging ☐</td> <td style="border: none;">Other ☐</td> </tr> <tr> <td style="border: none;">Large Fab ☐</td> <td style="border: none;">Composite ☐</td> <td style="border: none;">Supplier ☐</td> <td></td> </tr> </table>						Skid-tube ☐	Cross tube ☐	Water Jet ☐	Engineering ☐	Machining ☐	Small Fab ☐	Prod. Eng. Coord. ☐	Quality ☐	Thermoforming ☐	Finishing ☐	Rec/Store/Packaging ☐	Other ☐	Large Fab ☐	Composite ☐	Supplier ☐	
Skid-tube ☐	Cross tube ☐	Water Jet ☐	Engineering ☐																						
Machining ☐	Small Fab ☐	Prod. Eng. Coord. ☐	Quality ☐																						
Thermoforming ☐	Finishing ☐	Rec/Store/Packaging ☐	Other ☐																						
Large Fab ☐	Composite ☐	Supplier ☐																							
Date :		Step #:		QTY Effective :			MRB (QSI042) Approval																		
Description Work Order Deviation				Disposition				Completed By																	
								Lead hand / Supervisor Approval Verification																	
										QC / QA Coordinator Approval															
Root Cause		FAULT CATEGORY																							
Environment ☐ Design ☐ Doc/Data ☐ Equip/Tooling ☐ Handling/Pre ☐ Material ☐ Internal Transport ☐ Tribal Knowledge ☐ LOA ☐ Substation ☐ Past Expiry Date ☐ Misidentified ☐	No Re-verification ☐ Operator ☐ Offset/Setup ☐ Supplier ☐ Training ☐ Use for Testing ☐ Poor Information ☐ Rushing ☐ Product Improvement ☐ Process Improvement ☐ Manufacturing Process ☐ Past Due ☐	Pressure/Forced ☐ Bending ☐ Centre Not Concentric ☐ Cracks ☐ Crimp/Kink/Ripple/Wave ☐ Cuffs ☐ Crushing ☐ Heat Treat ☐ Wave/Twist in Tube ☐ Marks/Chatter ☐		Temperature/Cure ☐ Set-up ☐ BOM/Route ☐ Broken/Damage/Defect ☐ Inspection Incomplete/Unqualified ☐ Contamination ☐ Countersink ☐ Cut Too Short ☐ Instructions Incomplete/Unclear ☐ Drill Holes ☐		Power Loss/Surge ☐ Folio/Program ☐ Grain ☐ Weld ☐ Wrong Stock Pulled ☐ Out of Sequence ☐ Off-set ☐ Mislabeled ☐ Fit/Function ☐ Misaligned/off center ☐		Positioned Wrong ☐ Outside Dimensions ☐ Over/Under tolerance ☐ Part Incorrect ☐ Part Lost/Missing ☐ Part Moved ☐ Drawing ☐ Finish ☐ Misread ☐ Turning Sequence ☐																	
OTHER :																									

Picklist Print

Monday, August 29, 2016 2:49:38 PM

Page 1

Work Order ID: 150624

150624

Parent Item: 646.3311

646 3311

Parent Item Name: RH Half - Upper Cutter Assembly

Start Date: 8/8/2016

Required Date: 8/29/2016

Start Qty: 10.00

Required Qty: 10.00

Comments: IPP REV:A NEW ISSUE 12/11/27 JFS VERIFY BY: JLM

Component Item ID/ Item Name	Replacement Item ID	Mfg/ Purch	Bin Item	Primary Location	Last Location	Route Seq ID	Unit of Measure	Qty on Hand	Qty per Kit	Total Qty	Qty Issued	Date Issued	Status
M7075T6B7.000X2.000		Purchased	No				f	0.0000		11.73684			

M7075T6B7 000X2 000

7075-T6 BAR 7.000" X 2.000" (order in billets - 13.375")

M/35597 → 12

DAS
14
939
12/10/03

DQA: _____ Date: _____



WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____	DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐	AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Composite ☐ Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐ Engineering ☐ Quality ☐ Other ☐			
Date :	Step #:	QTY Effective :		MRB (QSI042) Approval	
Description Work Order Deviation		Disposition			
				Completed By	
				Lead hand / Supervisor Approval Verification	
				QC / QA Coordinator Approval	
Root Cause Environment ☐ Design ☐ Doc/Data ☐ Equip/Tooling ☐ Handling/Pre ☐ Material ☐ Internal Transport ☐ Tribal Knowledge ☐ LOA ☐ Substation ☐ Past Expiry Date ☐ Misidentified ☐ No Re-verification ☐ Operator ☐ Offset/Setup ☐ Supplier ☐ Training ☐ Use for Testing ☐ Poor Information ☐ Rushing ☐ Product Improvement ☐ Process Improvement ☐ Manufacturing Process ☐ Past Due ☐		FAULT CATEGORY Pressure/Forced ☐ Bending ☐ Centre Not Concentric ☐ Cracks ☐ Crimp/Kink/Ripple/Wave ☐ Cuffs ☐ Crushing ☐ Heat Treat ☐ Wave/Twist in Tube ☐ Marks/Chatter ☐ Temperature/Cure ☐ Set-up ☐ BOM/Route ☐ Broken/Damage/Defect ☐ Inspection Incomplete/Unqualified ☐ Contamination ☐ Countersink ☐ Cut Too Short ☐ Instructions Incomplete/Unclear ☐ Drill Holes ☐ Power Loss/Surge ☐ Folio/Program ☐ Grain ☐ Weld ☐ Wrong Stock Pulled ☐ Out of Sequence ☐ Off-set ☐ Mislabeled ☐ Fit/Function ☐ Misaligned/off center ☐ Positioned Wrong ☐ Outside Dimensions ☐ Over/Under tolerance ☐ Part Incorrect ☐ Part Lost/Missing ☐ Part Moved ☐ Drawing ☐ Finish ☐ Misread ☐ Turning Sequence ☐			
OTHER : ☐					

APICAL

INDUSTRIES, INC.

ENGINEERING CHANGE NOTICE NO.

04765

SHEET 1 OF 1

DWG NO. 646.3300

REV: NC

PREPARED BY J. SOTO

DATE: 12/08/2014

EFFECT ON DWG
☐ INC. ☒ UNINC.

DWG TITLE: UPPER CUTTER ASSY

APPROVED BY: ENGR. *[Signature]*

MFG. *[Signature]*

QC *[Signature]*

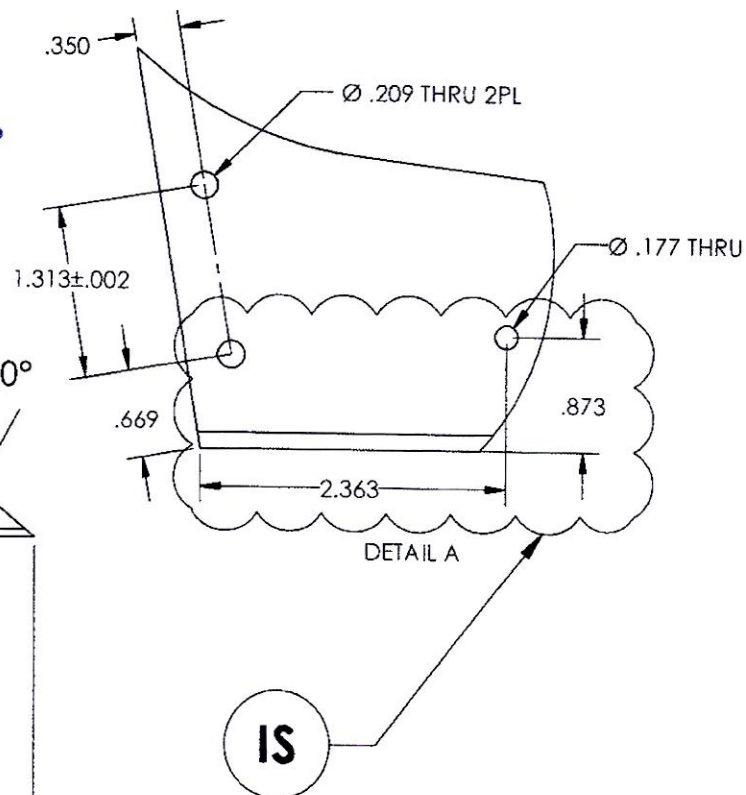
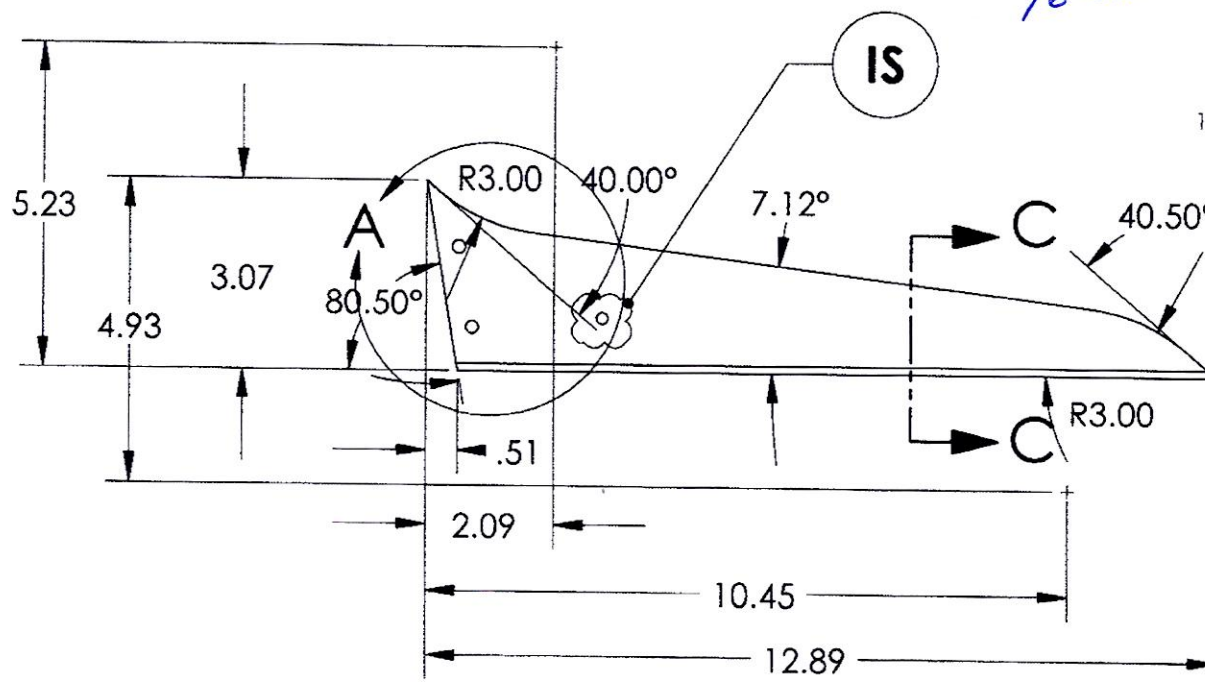
EFF. NEXT ORDER

TRANSACTION CODES (TC):
A-ADD
C-CREATE
R-REVISE
D-DELETE

REASON: ADDED HOLE DIMENSION TO 646.3313.

SHEET 5 IS:

SHOP COPY
RETURN TO
ENGINEERING
UNCONTROLLED COPY
SUBJECT TO AMENDMENT
WITHOUT NOTICE
WORK ORDER
NO. 150624 MJS
16-08-30



DOCUMENTS EFFECTED:

☐ MDL ☐ INSTALL INSTRUCTIONS ☐ ICA ☐ FMS ☐ BOM

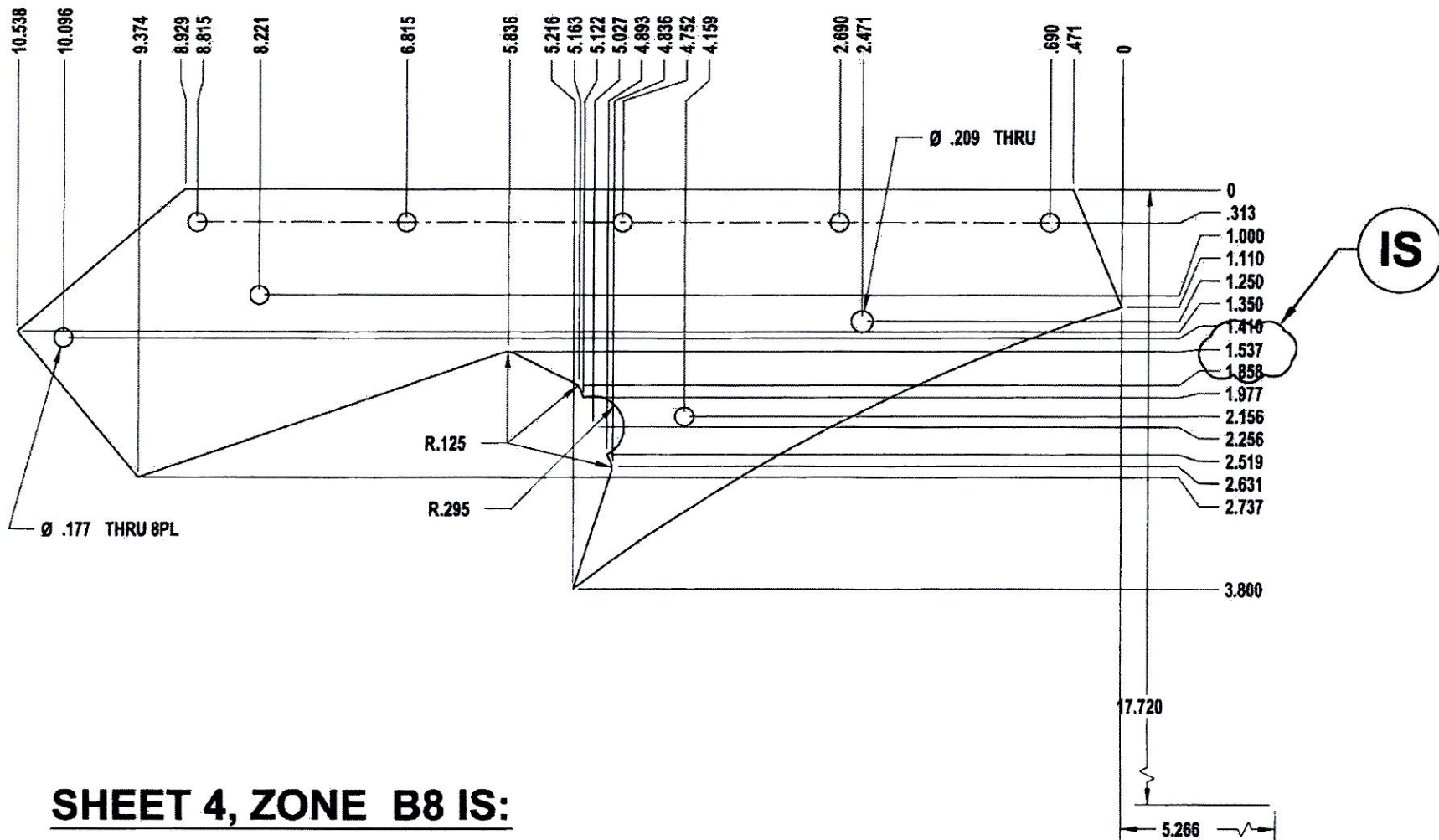
CHANGE CATEGORY

☐ MAJOR ☒ MINOR

DER REVIEW REQUIRED

☐ YES ☒ NO

APICAL INDUSTRIES, INC.	ENGINEERING CHANGE NOTICE NO. 03724				SHEET 1 OF 1	
	DWG NO. 646.3300	REV: N/C	PREPARED BY B. PETERS	DATE: 12/05/12	EFFECT ON DWG ☐ INC. ☒ UNINC.	
	DWG TITLE: UPPER CUTTER ASSY					
	APPROVED BY: ENGR <i>[Signature]</i>	MFG <i>[Signature]</i>	QC <i>[Signature]</i>	EFF: NEXT ORDER		
TRANSACTION CODES (TC): A-ADD C-CREATE R-REVISE D-DELETE	REASON: REVISED ORDINATE DIMENSION.				ECR: D-12-025	

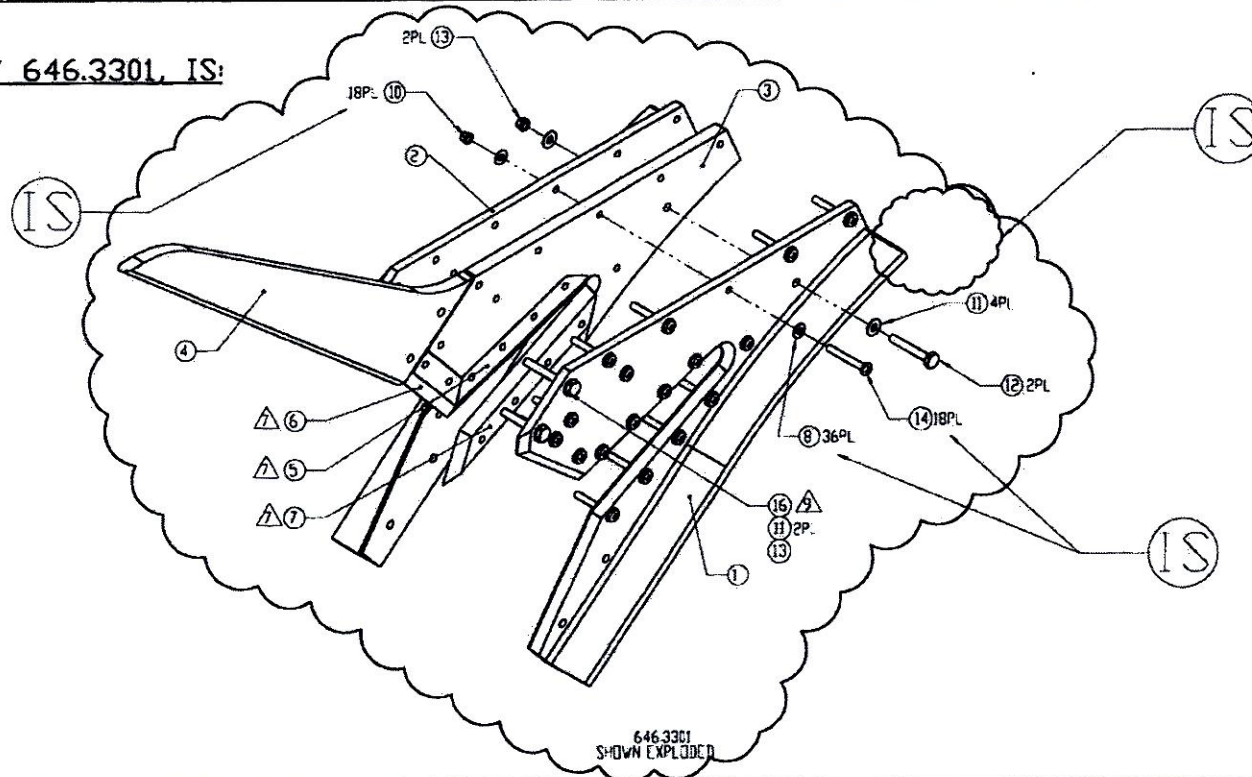


SHEET 4, ZONE B8 IS:

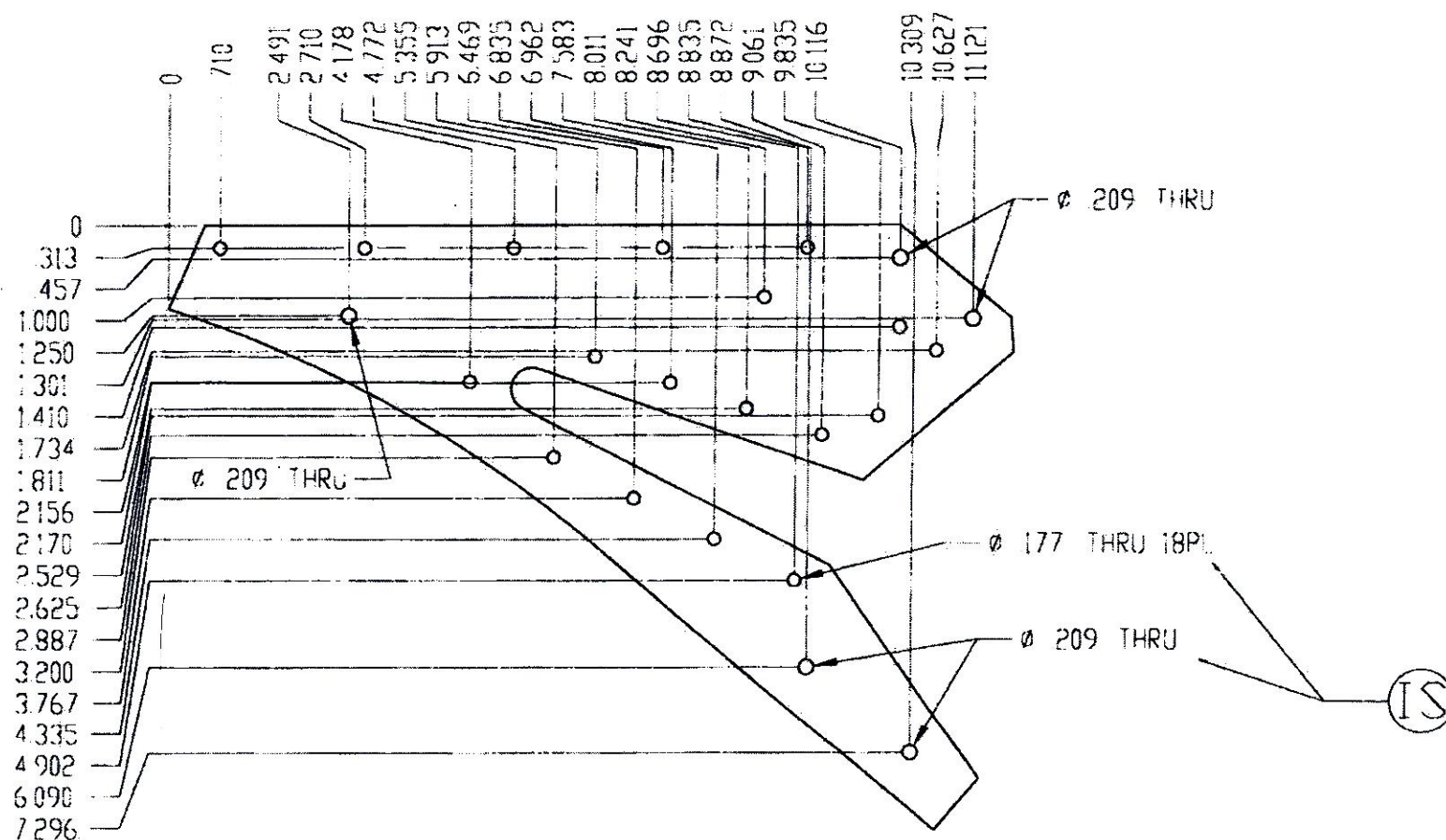
DOCUMENTS EFFECTED:	☐ RFMS ☐ MDL ☐ INSTALL INSTRUC ☐ ICA ☐ BOM	CHANGE CATEGORY ☐ MAJOR ☒ MINOR	DER REVIEW REQUIRED ☐ YES ☒ NO
---------------------	---	---	--

APICAL INDUSTRIES, INC.	ENGINEERING CHANGE NOTICE NO. 02196		SHEET 1 OF 2	
	DWG NO. 646.3300	REV: N/C	PREPARED BY S. HUFF	DATE: 01/05/09
	EFFECT ON DWG ☐ INC. ☒ UNINC.			
DWG TITLE: UPPER CUTTER ASSY				
APPROVED BY: ENGR <i>[Signature]</i>	MFG <i>[Signature]</i>	QC <i>[Signature]</i>	EFF: <i>[Signature]</i>	NEXT ORDER
REASON: REMOVED RIVETS IN FAVOR OF ADDITIONAL SCREWS				
TRANSACTION CODES (TC) A-ADD C-CREATE R-REVISE D-DELETE				

SHEET 1, VIEW 646.3301, IS:



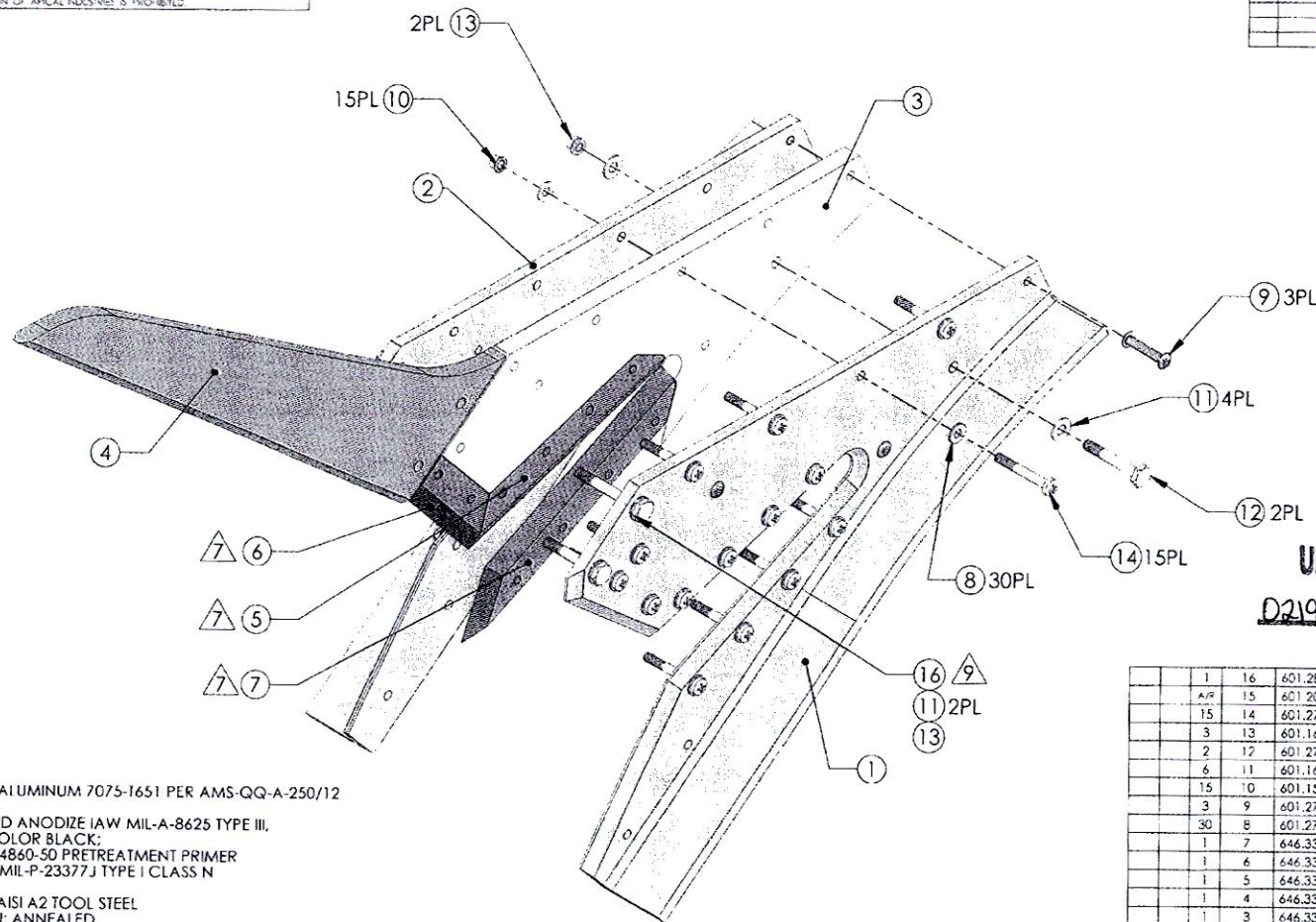
14	R	601.2765	18	SCREW	MS27039-0819
10	R	601.1541	18	LOCKNUT	MS21042L08
9	D	601.2766	3	RIVET	MS20470AD5-18
8	R	601.2764	36	WASHER	NAS1149FN832P
			.3301		
F/N	TC	PART NUMBER	QTY	DESCRIPTION	MATERIAL/SPECIFICATION
DOCUMENTS EFFECTED:					CHANGE CATEGORY
☐ MDL ☒ INSTALL INSTRUC ☒ ICA ☐ FMS ☒ BOM					☐ MAJOR ☒ MINOR
DER REVIEW REQUIRED					☐ YES ☒ NO

SHEET 3. SECTION VIEW A-A, IS:SECTION A-A $\frac{P}{6}$

F/N	TC	PART NUMBER	QTY	DESCRIPTION	MATERIAL/SPECIFICATION

THE INFORMATION CONTAINED IN THIS DRAWING IS THE SOLE PROPERTY OF APICAL INDUSTRIES AND REPRODUCTION IN PART OR WHOLE WITHOUT THE WRITTEN PERMISSION OF APICAL INDUSTRIES IS PROHIBITED.

REV	DESCRIPTION	DATE	APPROVED



UNINCORPORATED ECN(S)

02196, 03724, 04765

NOTES:

- 1 MATERIAL: ALUMINUM 7075-16S1 PER AMS-QQ-A-250/12
- 2 FINISH: HARD ANODIZE IAW MIL-A-8625 TYPE III, CLASS 2, COLOR BLACK; CARDINAL 4860-50 PRETREATMENT PRIMER PRIME IAW MIL-P-23377J TYPE I CLASS N
- 3 MATERIAL: AISI A2 TOOL STEEL CONDITION: ANNEALED POST PROCESS: HEAT TREAT TO 58-62 Rc ROCKWELL HARDNESS
- 4 FINISH: PRIME IAW MIL-P-23377J TYPE I CLASS N
- 5 DEBURR AND BREAK ALL SHARP EDGES EXCEPT WHERE OTHERWISE NOTED
- 6 IDENTIFY IAW MPP-120
- 7 APPLY F/N 15 AS REQUIRED TO ALL FAYING SURFACES OF F/N 5, 6 & 7 UPON ASSEMBLY
- 8 CUTTING EDGE INTENDED TO BE SHARP. DO NOT BREAK SHARP EDGE
- 9 INSTALL FASTENER FINGER-TIGHT

646.3301
SHOWN EXPLODED

QTY	REV	REV #	PART #	DESCRIPTION	MAT'L	SPEC
1	16	601.2834	BOLT	AMS 144		
15	15	601.2045	RTV, LOCITE 598			
15	14	601.2765	SCREW	MS27539-0819		
3	13	601.1624	LOCKNUT	MS21043G5		
2	12	601.2763	BOLT	AMS 128		
6	11	601.1607	WASHER	MS114990230P		
15	10	601.1541	LOCKNUT	MS1104208		
3	9	601.2766	RIVET	MS20470A05-18		
30	8	601.2764	WASHER	MS114990230P		
1	7	646.3316	BLADE			
1	6	646.3315	BLADE			
1	5	646.3314	BLADE			
1	4	646.3313	UPPER GUIDE			
1	3	646.3312	CENTER PLATE			
1	2	646.3311	RH HALF			
1	1	646.3310	LH HALF			
1	0	646.3301	UPPER CUTTER ASSY			
QTY	REV	REV #	PART #	DESCRIPTION	MAT'L	SPEC
1	16	601.2834	BOLT	AMS 144		
15	15	601.2045	RTV, LOCITE 598			
15	14	601.2765	SCREW	MS27539-0819		
3	13	601.1624	LOCKNUT	MS21043G5		
2	12	601.2763	BOLT	AMS 128		
6	11	601.1607	WASHER	MS114990230P		
15	10	601.1541	LOCKNUT	MS1104208		
3	9	601.2766	RIVET	MS20470A05-18		
30	8	601.2764	WASHER	MS114990230P		
1	7	646.3316	BLADE			
1	6	646.3315	BLADE			
1	5	646.3314	BLADE			
1	4	646.3313	UPPER GUIDE			
1	3	646.3312	CENTER PLATE			
1	2	646.3311	RH HALF			
1	1	646.3310	LH HALF			
1	0	646.3301	UPPER CUTTER ASSY			

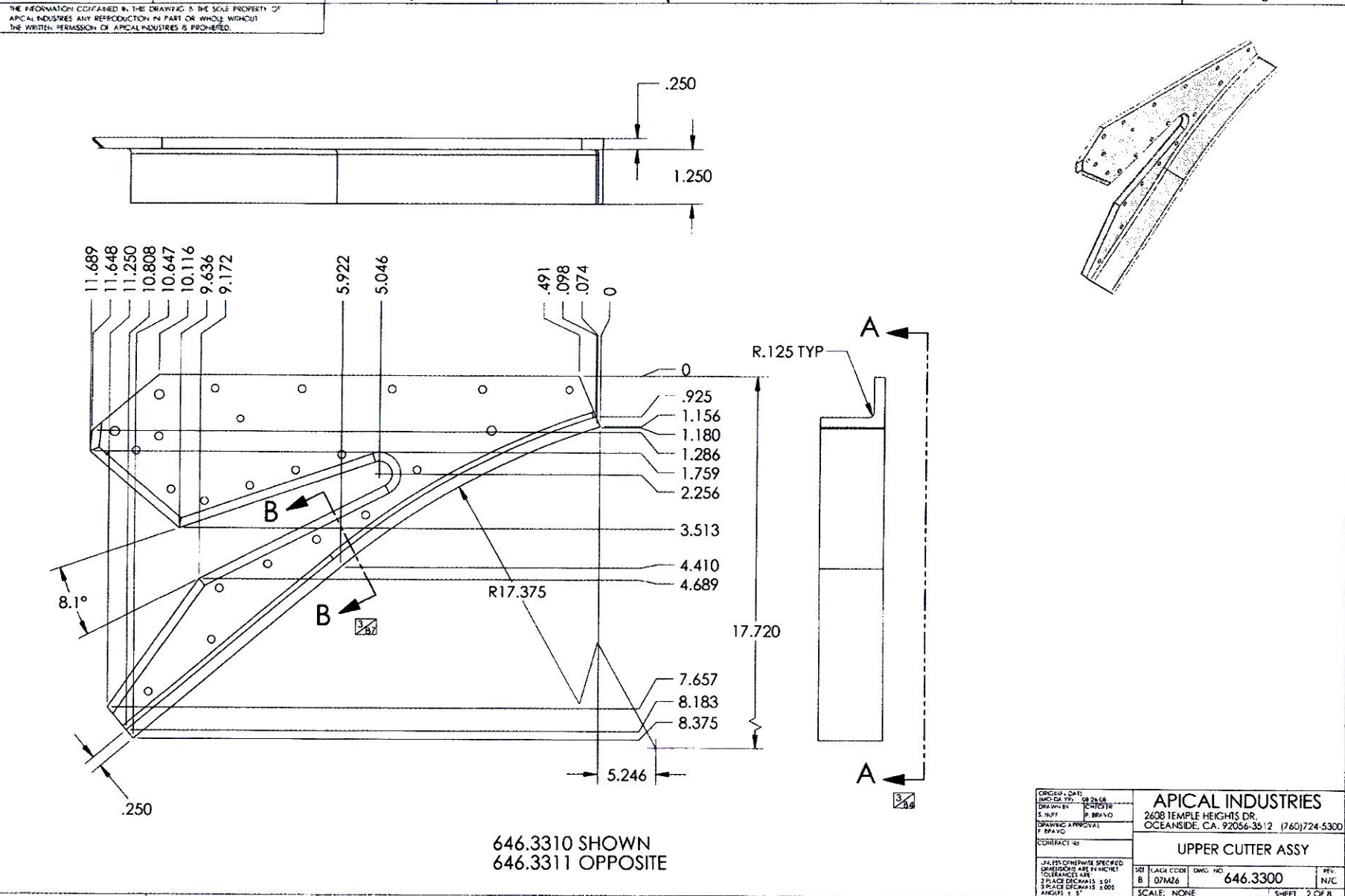
APICAL INDUSTRIES

2608 TEMPLE HEIGHTS DR.
OCEANSIDE, CA. 92056-3512 (760)724-5300

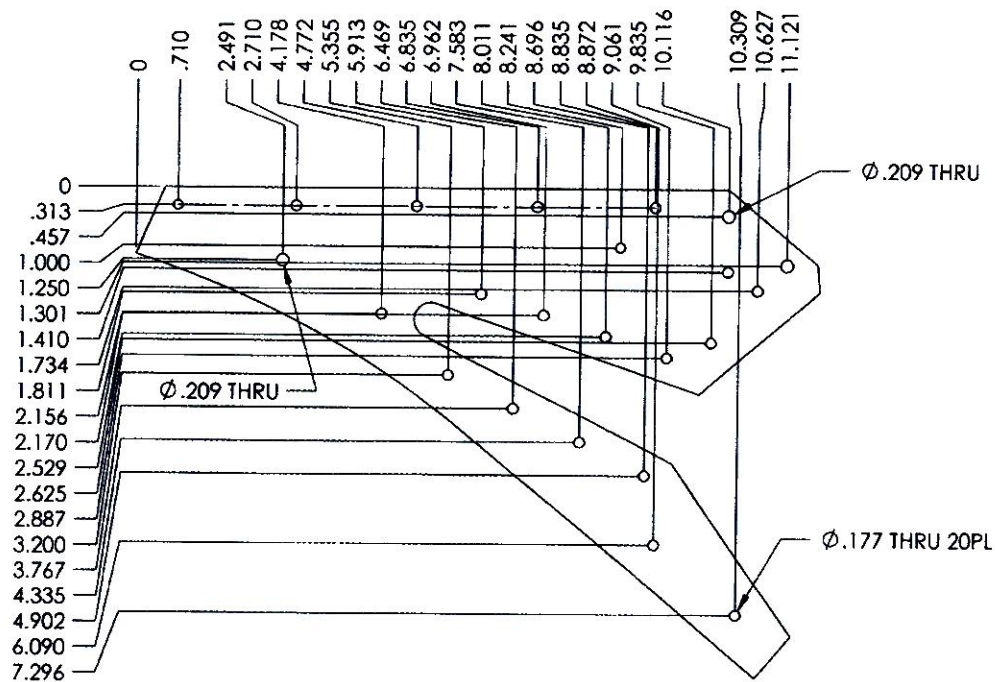
UPPER CUTTER ASSY

SCALE: NONE SHEET 1 OF 8

THE INFORMATION CONTAINED IN THIS DRAWING IS THE SOLE PROPERTY OF
APICAL INDUSTRIES ANY REPRODUCTION IN PART OR WHOLE WITHOUT
THE WRITTEN PERMISSION OF APICAL INDUSTRIES IS PROHIBITED.



THE INFORMATION CONTAINED IN THIS DRAWING IS THE SOLE PROPERTY OF APICAL INDUSTRIES. ANY REPRODUCTION IN PART OR WHOLE WITHOUT THE WRITTEN PERMISSION OF APICAL INDUSTRIES IS PROHIBITED.



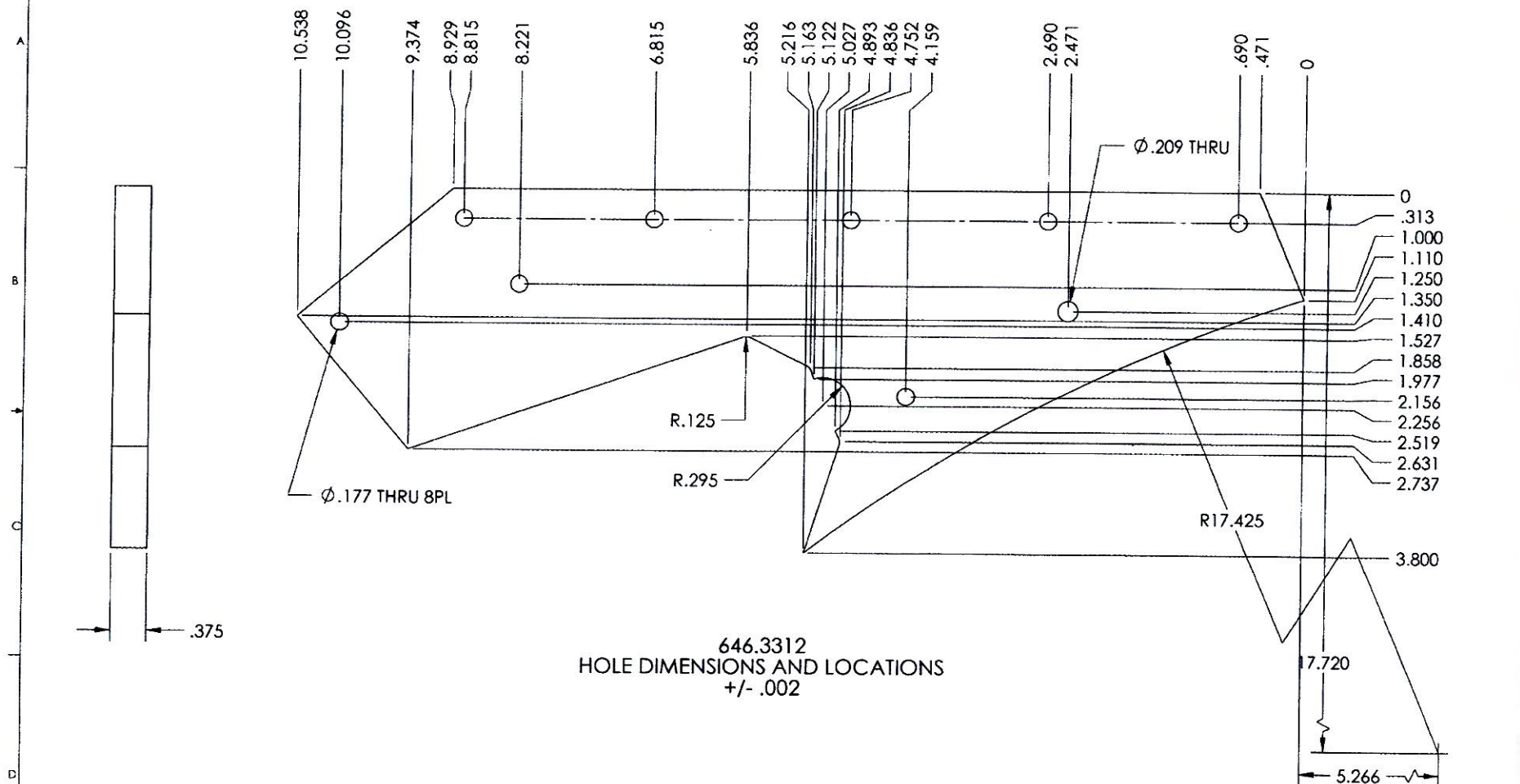
SECTION A-A

SECTION B-B

ORIGINAL DATE END QTY. 10-26-06		APICAL INDUSTRIES	
DRAWN BY C. HART	CHECKED B. HART	2608 TEMPLE HEIGHTS DR. OCEANSIDE, CA. 92056-3512 (760) 724-5300	
DESIGNED BY C. HART		UPPER CUTTER ASSY	
CONFIRMED BY		REV. 1 B 07/02/06	646.3300
ALL DIMENSIONS UNLESS SPECIFIED IN PARAGRAPHS ARE IN INCHES TOLERANCES ARE: FRACTIONS DECIMALS INCHES FRACTIONS DECIMALS INCHES FRACTIONS DECIMALS INCHES		SCALE NONE	SHEET 3 OF 8

THE INFORMATION CONTAINED IN THIS DRAWING IS THE SOLE PROPERTY OF
APICAL INDUSTRIES. ANY REPRODUCTION IN PART OR WHOLE WITHOUT
THE WRITTEN PERMISSION OF APICAL INDUSTRIES IS PROHIBITED.

REVISIONS			
REV	DESCRIPTION	DATE	APPROVED

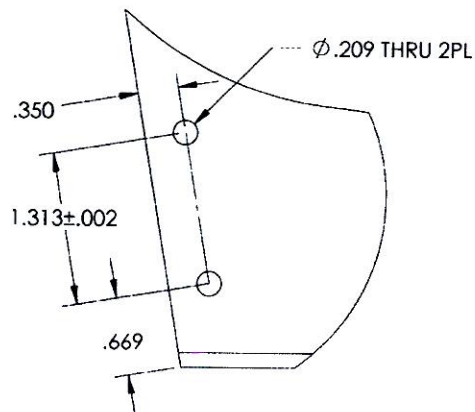
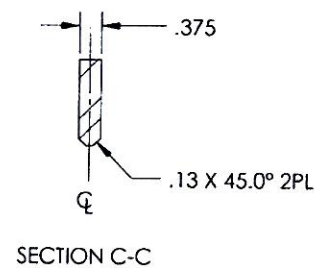
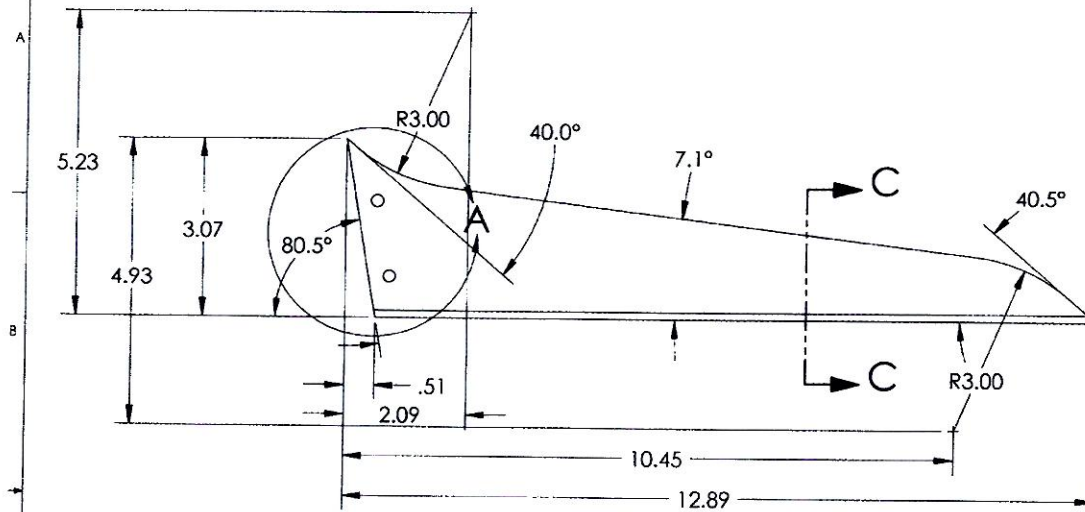


646.3312
HOLE DIMENSIONS AND LOCATIONS
+/- .002

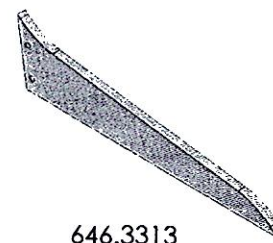
ORIGINAL DATE: 10/24/88		DESIGNED BY: P. BROWNE	
DRAWN BY: P. BROWNE		CHECKED BY: P. BROWNE	
DATE: 10/24/88		SCALE: NONE	
UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN INCHES TOLERANCES ARE: 1 PLACE DECIMALS .01 2 PLACE DECIMALS .005 ANGLES .5°		APICAL INDUSTRIES 2608 TEMPLE HEIGHTS DR. OCEANSIDE, CA. 92056-3512 (760)724-5300 UPPER CUTTER ASSY PART NO. 646.3300 SCALE: NONE SHEET 4 OF 8	

THE INFORMATION CONTAINED IN THIS DRAWING IS THE SOLE PROPERTY OF APICAL INDUSTRIES. ANY REPRODUCTION IN PART OR WHOLE WITHOUT THE WRITTEN PERMISSION OF APICAL INDUSTRIES IS PROHIBITED.

REVISION			
REV	DESCRIPTION	DATE	APPROVED



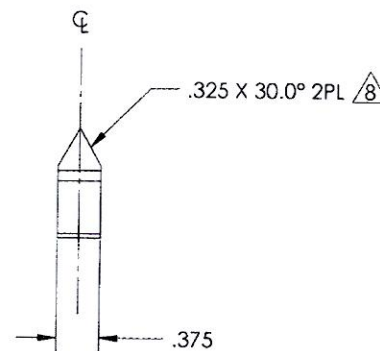
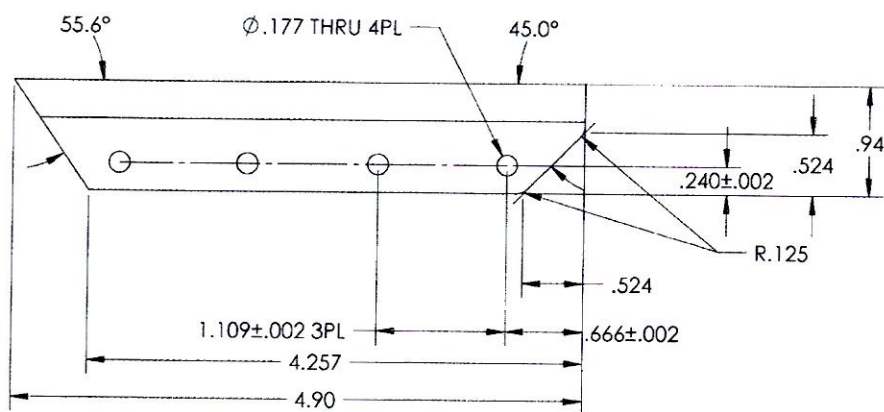
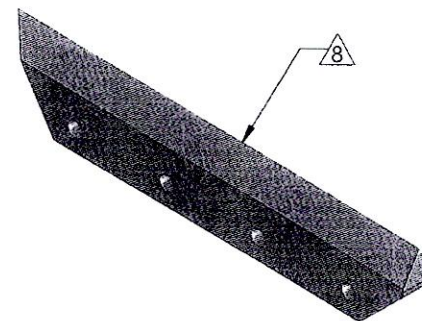
DETAIL A



ORIGINAL DATE (MO/DA/YR) 08-20-05		APICAL INDUSTRIES	
DRAWN BY S. HOFF	CHECKED P. BRIVIO	2608 TEMPLE HEIGHTS DR. OCEANSIDE, CA. 92056-3512 (760) 724-5300	
DESIGNED & APPROVED P. BRIVIO		UPPER CUTTER ASSY	
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ARE: 2 PLACE DECIMALS ± .01 3 PLACE DECIMALS ± .001 ANGLES ± .5°		REV B 07/02/06	DATE 646.3300
SCALE NONE		SHEET 5 OF 6	

THE INFORMATION CONTAINED IN THIS DRAWING IS THE SOLE PROPERTY OF APICAL INDUSTRIES AND REPRODUCTION IN PART OR WHOLE WITHOUT THE WRITTEN PERMISSION OF APICAL INDUSTRIES IS PROHIBITED.

REV.	DESCRIPTION	DATE	APPROVED

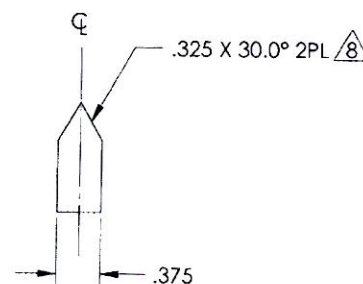
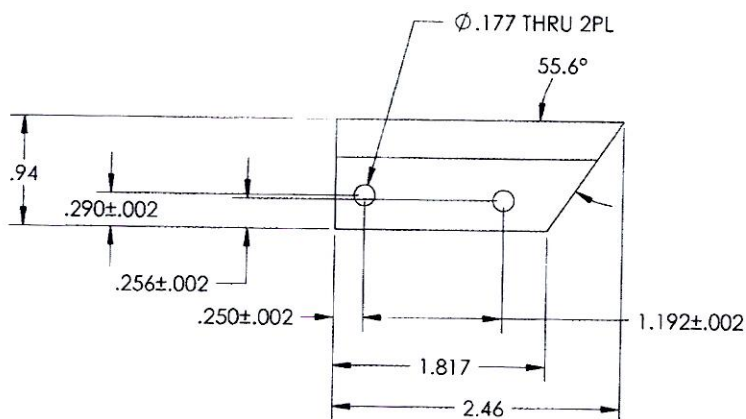
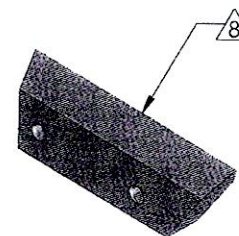


646.3314

ORIGINAL DATE 1/10/04 BY: JG-2008 DRAWN BY: JG-2008 S. HUB: P. BRAVO DRAWING APPROVAL P. BRAVO DATE: 1/10/04 COMPARISON: 1/10/04	APICAL INDUSTRIES 2608 TEMPLE HEIGHTS DR. OCEANSIDE, CA 92056-3512 (760)724-5300
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ARE: HOLE DIMENSION: ±.01 HOLE DIMENSION: ±.01 HOLE DIMENSION: ±.01	101 CAD CODE: DWG NO: 646.3300 8 07/02/06 SCALE: NONE
REV: N/C	SHEET: 6 OF 8

THE INFORMATION CONTAINED IN THIS DRAWING IS THE SOLE PROPERTY OF APICAL INDUSTRIES. ANY REPRODUCTION IN PART OR WHOLE WITHOUT THE WRITTEN PERMISSION OF APICAL INDUSTRIES IS PROHIBITED.

REV.	DESCRIPTION	DATE	APPROVED

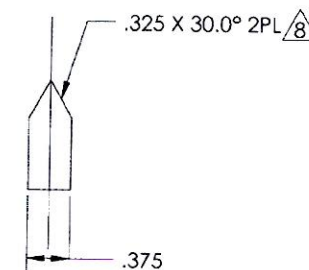
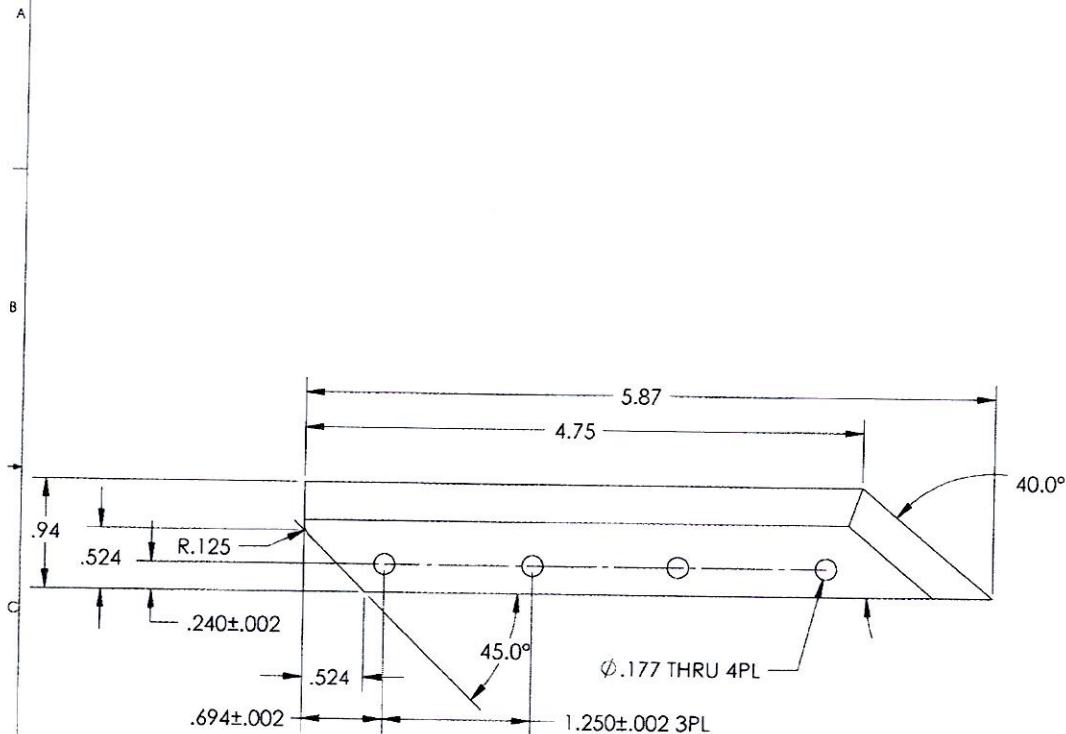
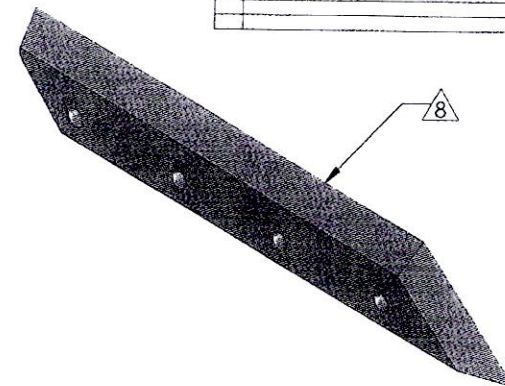


646.3315

ORIGINAL DATE AND C.A. 12/08 DRAWN BY: P. MAVO I. HUI DRAWING APPROVAL I. HUI CONTRACT NO.	APICAL INDUSTRIES 2608 TEMPLE HEIGHTS DR. OCEANSIDE, CA. 92056-3512 (760)724-5300
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ARE: 2 PLACE DECIMALS ±.01 3 PLACE DECIMALS ±.005 ANGLES ±.5°	SHEET 7 OF 8 SCALE NONE PART NAME: UPPER CUTTER ASSY PART NO: 646.3300 REV: N/C

THE INFORMATION CONTAINED IN THIS DRAWING IS THE SOLE PROPERTY OF APICAL INDUSTRIES. ANY REPRODUCTION IN PART OR WHOLE WITHOUT THE WRITTEN PERMISSION OF APICAL INDUSTRIES IS PROHIBITED.

REV.	DESCRIPTION	DATE	APPROVED



646.3316

ORIGINAL DATE: 08-20-08 APPROVAL: 08-20-08 DRAWN BY: S. HOFF CHECKED BY: P. BRAYO DRAWING APPROVAL: P. BRAYO REVISION: 08-20-08	APICAL INDUSTRIES 2608 TEMPLE HEIGHTS DR. OCEANSIDE, CA. 92056-3512 (760) 724-5300 UPPER CUTTER ASSY
SHEET: 07/02/08 SCALE: NONE SHEET: 8 OF 8	TITLE: 646.3300 REV: 11/C



Dart Aerospace Ltd.
1270 Aberdeen Street
Hawkesbury, ON K6A 1K7
Tel: 613 632 9577
Fax: 613 632 1053

PURCHASE ORDER

Purchase Order ID **PO33916**

Purchase Order Date 10/12/2016

PO Print Date 10/19/2016

Page Number 2 of 7

Order From :

VC-ATG001

A.T.G. INDUSTRIES INC.
731 INDUSTRIELLE ROAD
ROCKLAND, ON K4K 1T2
CANADA

Ship To : DART AEROSPACE LTD
1270 ABERDEEN
HAWKESBURY, ON K6A 1K7
CANADA

Contact Name

Vendor Phone 613-446-4544

Ship To Contact

Ship To Phone

Ship Via: VENDOR'S TRUCK

Ship Acct:

Buyer

Chantal Lavoie

Customer POID

Customer Tax # 10127-2607

Terms Net 30

Currency CAD

FOB FCA - (Free Carrier)

Line Total: \$72.40

150624

DAS
38
9-89

646.3311 UPPER
CUTTER REV. N/C

10/28/2016

10.00

\$18.10

\$181.00

Yes

10/28/2016

FINISH: HARD BLACK ANODIZE AS PER IAW MIL-A-8625 TYPE III, CLASS 2 / PRIME AS PER IAW MIL-P-23377J TYPE 1 CLASS N

Line Total: \$181.00

5 150716

646.3312 CENTER
PLATE REV. N/C

10/28/2016

4.00

\$12.05

\$48.20

Yes

10/28/2016

FINISH: HARD BLACK ANODIZE AS PER IAW MIL-A-8625 TYPE III, CLASS 2 / PRIME AS PER IAW MIL-P-23377J TYPE 1 CLASS N

Line Total: \$48.20

6 150685

646.3711 CLIP REV. A

10/28/2016

5.00

\$6.10

\$30.50

Yes

10/28/2016

FINISH: HARD BLACK ANODIZE AS PER IAW MIL-A-8625 TYPE III, CLASS 2 / PRIME AS PER IAW MIL-P-23377J TYPE 1 CLASS N

Note:

10/19/2016



A.T.G. INDUSTRIES INC.
731 INDUSTRIELLE STREET
ROCKLAND, ON K4K 1T2
Canada

Ph: (613) 446-4544

Fax: (613) 446-4556

Pack List

Number: 912462

Date: 28-Oct-16

To

Dart Aerospace Ltd
1270 Aberdeen St
Hawkesbury, ON K6A 1K7

Ship To

CHANTAL LAVOIE
Dart Aerospace Ltd
1270 Aberdeen St
Hawkesbury, ON K6A 1K7

Ph: 613 632-9577

Fax: 613 632-1053

Ph: 613 632-9577

Fax: 613 632-1053

Terms		Ship Via	
Quantity	Description		
	Hard Anodize, Type III, Class 2 (MIL-A-8625) Primer, MIL-P-23377J, TYPE 1, CLASS N Job: 20279 PO: 33916	Line: 2	
4 ea	Part: 646.3310 Upper cutter Hard Anodize, Type III, Class 2 (MIL-A-8625) Primer, MIL-P-23377J, TYPE 1, CLASS N Job: 20280 PO: 33916	Rev: N/C Line: 3	
10 ea	Part: 646.3311 Upper cutter Hard Anodize, Type III, Class 2 (MIL-A-8625) Primer, MIL-P-23377J, TYPE 1, CLASS N Job: 20281 PO: 33916	Rev: N/C Line: 4	<i>SP16 10-31</i> DAS 38 9-89
4 ea	Part: 646.3312 Center plate Hard Anodize, Type III, Class 2 (MIL-A-8625) Primer, MIL-P-23377J, TYPE 1, CLASS N Job: 20282 PO: 33916	Rev: N/C Line: 5	
5 ea	Part: 646.3711 Clip Hard Anodize, Type III, Class 2 (MIL-A-8625) Primer, MIL-P-23377J, TYPE 1, CLASS N Job: 20283 PO: 33916	Rev: A Line: 6	
10 ea	Part: 646.3712 Clip Hard Anodize, Type III, Class 2 (MIL-A-8625) Primer, MIL-P-23377J, TYPE 1, CLASS N Job: 20284 PO: 33916	Rev: A Line: 7	
6	Part: 646.3714	Rev: A	



A.T.G. INDUSTRIES INC.
731 INDUSTRIELLE STREET
ROCKLAND, ON K4K 1T2
Canada

Ph: (613) 446-4544

Fax: (613) 446-4556

Pack List

Number: 912462

Date: 28-Oct-16

To

Dart Aerospace Ltd
1270 Aberdeen St
Hawkesbury, ON K6A 1K7

Ship To

CHANTAL LAVOIE
Dart Aerospace Ltd
1270 Aberdeen St
Hawkesbury, ON K6A 1K7

Ph: 613 632-9577

Fax: 613 632-1053

Ph: 613 632-9577

Fax: 613 632-1053

Terms

Ship Via

Quantity

Description

ea

Gusset

Hard Anodize, Type III, Class 2 (MIL-A-8625)

Primer, MIL-P-23377J, TYPE 1, CLASS N

Job: 20285

PO: 33916

Line: 8

12

Part: 646.3715

Rev: A

ea

Strur doubler

Hard Anodize, Type III, Class 2 (MIL-A-8625)

Primer, MIL-P-23377J, TYPE 1, CLASS N

Job: 20286

PO: 33916

Line: 9

DATE:

28/10/16

CERTIFIED SIGNATURE:

[Signature]

RECEIVER SIGNATURE:

[Signature]

Note: This Packing Slip may contain parts that have been PLATED. Items that are plated may be subject to natural tarnishing and it is suggested that they be inspected within 24 hours of receipt.

CERTIFICATE OF CONFORMANCE

A.T.G. INDUSTRIES INC. CERTIFIES THAT ALL ITEMS IN THIS SHIPMENT CONFORM TO REQUIREMENTS.

MADE IN CANADA.

DAS
38
9-89